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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,204	02/26/2002	Takuro Sekiya	220103US2	8688

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ALEXANDRIA, VA 22314

EXAMINER

MENEFEE, JAMES A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

10/085,204

Applicant(s)

SEKIYA ET AL.

Examin r

James A. Menefee

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-62 are subject to restriction and/or election requirement.

*Paul IP*

PAUL IP

SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

In response to the preliminary amendment filed 1 April 2002, the specification and claim 1 are amended. Claims 1-62 are pending.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Note also that the examiner has noticed numerous instances where the term "im" is used to represent micrometers. These should be changed to " $\mu\text{m}$ ".

### ***Election/Restrictions***

This application contains claims directed to the following patentably distinct species of the claimed invention:

A DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 6-8)

A DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claims 9-17)

A surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 18-23)

A surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 24-27)

A surface emitting laser employing a DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claims 28-36)

A laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 37)

A laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 38)

A laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claim 39)

An optical interconnection system having a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 40)

An optical interconnection system having a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 41)

An optical interconnection system having a surface emitting laser employing a DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claims 42)

An optical interconnection system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 43)

An optical interconnection system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower

Art Unit: 2828

refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 44)

An optical interconnection system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claim 45)

An optical telecommunication system having a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 46)

An optical telecommunication system having a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claims 47)

An optical telecommunication system having a surface emitting laser employing a DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claims 48)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 49)

Art Unit: 2828

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 50)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher bandgap layer, a lower bandgap layer, and a layer with an intermediate bandgap disposed therebetween, said intermediate layer having a specified composition so that valence band energy is variable. (claim 51)

An optical transmission/reception system including a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 52)

An optical transmission/reception system including a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 53)

An optical transmission/reception system including a surface emitting laser employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness. (claim 54)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower

Art Unit: 2828

refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 55)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 56)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 57)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 58)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween,



Art Unit: 2828

said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 59)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 60)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 61)

An optical telecommunication system having a laser diode array utilizing a plurality of surface emitting lasers employing a DBR having a higher refractive index layer, a lower refractive index layer, and a layer with an intermediate refractive index disposed therebetween, said intermediate layer having a specified thickness, said system further having a number of other elements. (claim 62)

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Art Unit: 2828

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Art Unit: 2828


Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (703) 605-4367.

The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JM  
June 18, 2003

  
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